TRANSPORTATION INDUSTRIAL FUND POLICY: IMPROVING EFFICIENCY

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Executive Summary

TRANSPORTATION INDUSTRIAL FUND POLICY: IMPROVING EFFICIENCY

The Military Services received funding for only 90 percent of their FY89 transportation requirements. A comparable shortfall applies to FY90. Such funding shortfalls are severely constraining DoD transportation budgets. They also are contributing to shipment delays that threaten to degrade readiness and sustainability.

Although many of the causes of the funding shortfalls are outside DoD's control, it can still undertake a variety of actions to improve transportation efficiencies and reduce transportation expenditures consistent with readiness and sustainability goals. We recommend the following:

- *Adjust Military Airlift Command's (MAC's) Charges to Reflect Actual Mission Cost.* MAC incurs substantial financial losses on its Frequency Channels – routes flown on a regular schedule. Users often underutilize the Frequency Channel airlift, and the validators (who set the requirements for the service) bear no responsibility for unpaid operating costs. To improve aircraft utilization, MAC should develop a procedure to hold validators of Frequency Channels responsible for costs not covered by users.

- *Increase Aerial Port Holding Times.* MAC's aircraft utilization is highly sensitive to aerial port of embarkation (APOE) holding times. In one instance, when MAC increased APOE holding times from 48 hours to 55 hours, aircraft utilization improved markedly without increasing either total order-ship time or inventory costs. To determine the full effects of lengthening APOE holding times, MAC should conduct a 1-year test.

- *Improve Airlift Workload Stability.* In FY89, the Military Services undertook a variety of mid-budget-year changes to conserve their transportation funds – for example, shifting all or most of Transportation Priority 2 cargo to sealift. Those changes have disrupted MAC's plans to efficiently utilize its aircraft. MAC should devise a discount mechanism to encourage more accurate forecasts of passenger and cargo workloads, thereby improving the efficiency and utilization of its organic aircraft.

- *Introduce Discrete Military Sealift Command (MSC) Billing Rates.* MSC constructs its commodity billing rates by averaging inland costs, inbound and outbound over-ocean costs, port fees and assessments, and other

shipment factors on a regional basis. As a result, billing rates do not reflect MSC's actual costs for the specific services rendered. Where MSC's billing rates are significantly higher than actual costs, the buyer-seller relationship between MSC and its customer is degraded. DoD shippers are then forced to make decisions that would be quite different if billing rates reflected the actual cost of providing sealift services. To promote greater efficiency, MSC should reflect actual rather than regional costs in its billing rates.

- *Revise MSC's Contracts to Improve Rate and Service Stability.* MSC requires semiannual bidding by commercial carriers and awards indefinite-quantity contracts with minimum quality standards. We support MSC's initiative to revise commercial contracting practices to include lengthening contracts with a minimum of 1 year between bids; guaranteeing tonnages to carriers; and establishing reasonable, balanced quality performance standards. Such contract changes offer promise for lower, more stable sealift rates and for improved quality of performance.

- *Reduce Cost of the International Shipment of Personal Property.* Two basic actions offer potential to reduce DoD's international transportation costs for personal property. First, the Military Traffic Management Command (MTMC) should assess the cost-reduction potential of positioning and loading seavans at inland personal property forwarders' agent facilities. Second, MSC, as detailed above, should change its procedures for constructing billing rates for ocean lift. Those changes should increase MSC's leverage in negotiating ocean rates and help stabilize rates for personal property movement.

- *Introduce More Flexibility in Traffic Management.* Since traffic management functions are "direct funded," MTMC lacks the flexibility to respond to unexpected requirements. Also, the personnel ceiling imposed by the Department of the Army further limits MTMC's flexibility. To increase responsiveness, MTMC should develop the appropriate mechanism to industrially fund traffic management functions (in accordance with DoD Directive 7410.4, *Industrial Fund Operations*, July 1988), and the Department of the Army should relax its personnel ceilings.

Collectively, these actions can serve to increase DoD's transportation efficiency and better meet its transportation requirements. To assure that these actions are taken promptly, the Office of the Secretary of Defense should provide implementing guidance, monitor progress, and conduct periodic evaluations of the resulting changes.

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CHAPTER 1

DoD TRANSPORTATION ENVIRONMENT

INTRODUCTION

Recent budget reductions are having an adverse effect on DoD's transportation operations. In FY89, the Military Services received only 90 percent of the funding to meet their transportation requirements. A comparable shortfall applies to FY90.

In response to the budget reductions, the Military Services are undertaking various initiatives to conserve their transportation funds. They include reducing the use of premium airlift and questioning the level of industrial fund rates of the Transportation Operating Agencies (TOAs) – Military Airlift Command (MAC); Military Sealift Command (MSC); and Military Traffic Management Command (MTMC).

The TOAs also are responding to the new budget environment. They are examining the formulation of billing rates, reviewing operating procedures to improve utilization of transportation assets, and identifying opportunities to improve overall efficiency.

Prior to FY88, the transportation requirements of the Military Services were fully funded. Today, the constrained budget environment does not permit fully funding transportation requirements. As a result, the Military Services are keenly interested in the most economical and efficient TOA operations to make their limited transportation funds go farther.

This report recommends changes to DoD's transportation industrial fund procedures and operations. It addresses:

- Appropriate pricing of transportation services
- Efficient utilization of transportation assets
- Improvement in workload forecasting

- Efficient contracting and operating procedures
- Effective transportation planning.

AUSTERE BUDGETS

Table 1-1 summarizes TOA operations, workloads, and industrial fund cargo rates for the FY88 through FY90 period. For completeness, military personnel costs are included in the indicated columns, although they are funded through direct appropriation accounts.

The revenues and costs shown in Table 1-1 demonstrate the increasing austerity of the TOA budget environment. The Military Services have reduced, or kept constant, their transportation workloads in the FY88 through FY90 period, as indicated by the measurement tons of cargo processed by MTMC and MSC. MAC registered slight increases in airlift cargo over that period and a substantial increase in airlift passengers between FY88 and FY89.

The industrial fund cargo rates show considerable volatility over the 3 years. Prior to FY86, much of that volatility was caused by the TOAs recouping prior-year operating losses through changes to customer rates. Since FY86, however, losses to industrial funds have been recouped through appropriated fund "passthroughs" (payments), rather than through the rate structure. To a large extent, current annual rate fluctuations reflect market conditions and the contracting procedures utilized by the TOAs.

COMPTROLLER REVIEWS

The Comptroller of the DoD reviews military transportation budgets in two stages. First, he reviews the passenger and cargo workload forecasts, and their underlying assumptions, of the Military Services. Second, he reviews the TOAs' detailed cost estimates to accomplish the workloads. With that information, the Comptroller of the DoD then establishes the transportation budgets for both the Military Services and the TOAs.

In conducting his review, the Comptroller of the DoD applies a number of tests, primarily focusing on the economic and financial implications of the transportation programs, as well as on the transportation requirements themselves. The Comptroller of the DoD, for example, might question the feasibility of executing a transportation program within a given timeframe or the adequacy of the planning

TABLE 1-1

SUMMARY OF APPROVED OPERATIONS

(Dollars in millions)

TOA	Fiscal year		
	1988 (actual)	1989 (estimate)	1990 (estimate)
MTMC			
Revenue	233.0	237.4	281.3
Cost of goods and services sold	241.5	243.0	281.3
Variance	-8.5	-5.6	0.0
Measurement tons of cargo (000)	13,100	10,100	11,900
Industrial cargo rate changes (%)	-10.8	+ 7.9	+ 11.8
MSC			
Revenue	1,732.1	2,194.2	2,152.5
Cost of goods and services sold	2,027.2	2,125.5	2,151.4
Variance	-295.1	+ 68.7	+ 1.1
Measurement tons of cargo (000)	8,834	8,490	8,122
Industrial cargo rate changes (%)	-13.9	+ 50.0	+ 2.6
MAC[a]			
Revenue	1,683.9	2,841.7	2,835.6
Cost of goods and services sold	1,772.7	2,856.9	2,838.6
Variance	-88.8	-15.2	-3.0
Short tons of cargo (000)	349	358	367
Industrial cargo rate changes (%)	-13.6	+ 16.0	-0.7
Passengers (000)	1,037	1,141	1,142

Source: OSD Industrial Fund Overview, FY88/FY89 and FY90/FY91

[a]Under the Airlift Services Industrial Fund, FY88 figures do not include military personnel costs; FY89 includes $971 million and FY90 includes $950 million of these costs for illustrative purposes

effort to perform at a programmed level. As a result of these reviews, the movement of some passengers or cargo may be budgeted over a longer period of time.

The Comptroller of the DoD also poses a number of questions about the TOAs' cost estimates to accomplish the approved workloads and the construction of billing rates. Among these are questions pertaining to the inclusion of overhead or readiness

costs in the billing rates; the reflection of changing market conditions (such as fuel prices) in the estimation of operating costs; and any patterns of consistent over- or under-estimation of costs in prior budget cycles.

To accomplish a balanced review, the Comptroller of the DoD needs to maintain an open, continuous dialogue with the Military Services and the TOAs. Nothing less than strong working relationships and coordinated efforts will suffice to effectively balance transportation requirements with budgetary considerations. This requires no change to existing policy.

OPERATIONAL ADJUSTMENTS

The Military Services and the TOAs have made a number of operational adjustments to cope with today's budget restrictions. A few of those adjustments are described below.

The Military Services have taken a variety of short-term actions to conserve transportation funds. For example, the Navy and Air Force have diverted substantial quantities of air-eligible Transportation Priority 2 (TP-2) cargo to sealift. The Army is also challenging more air-eligible cargo. The Navy has reduced its use of Special Assignment Airlift Missions (SAAMs) by 30 percent, while the Air Force has simply delayed some cargo shipments.

The TOAs also have been making improvements in their operations to save transportation funds. MTMC, for example, is evaluating a new "through container" process to reduce personal property shipping costs. In this process, a contractor loads a seavan at an affiliated origin facility, thus eliminating separate linehaul to the ocean terminal and seavan loading at the port. MAC has been experimenting with increasing aerial port of embarkation (APOE) holding times – from 12 to 55 hours – in order to improve organic aircraft utilization. Finally, MSC has been conducting a comprehensive review of its sealift contract terms to improve the maritime industrial base and stabilize sealift rates.

These and other ongoing operational adjustments will have some impact on balancing DoD's transportation and budget requirements, but more is needed for long-term solutions. In the balance of this report, we lay out a set of industrial fund changes that will form the basis for such solutions.

CHAPTER 2

ASSESSMENT OF INDUSTRIAL FUND TRANSPORTATION OPERATIONS

This chapter presents the criteria used in evaluating the TOAs' industrial fund operations and the key issues revealed by that evaluation. Each issue is described and analyzed, followed by a recommendation to overcome any identified shortcomings.

EVALUATION CRITERIA

Two categories of criteria are employed to evaluate the state of the industrial funds. The first is based on principles normally associated with the industrial fund operation during the budget period. Those principles include applicability of a buyer-seller relationship, treatment of peacetime versus readiness costs, and establishment of stabilized rates and workloads. The second covers long-term rate fluctuations over a number of budget periods. These principles are discussed below.

Buyer-Seller Relationship

A buyer-seller relationship is necessary to qualify a function for inclusion in the industrial fund. Such a relationship exists when a seller offers a measurable product or service and a number of customers have a continuing demand for it. Rates are formulated and charged to customers for the services rendered or the products supplied.

Readiness Costs

Currently, wartime readiness costs must be financed by appropriations. Exclusion of such costs from industrial funds puts Government operations on an equal footing with the private sector. Therefore, the peacetime cost of maintaining unused capacity at, for example, military ocean terminals and outports, is not included in MTMC's rates for port handling. Similarly, the readiness elements of training missions are not included in MAC's rates for airlift services.

Stabilized Rates and Workloads

Billing rates are stabilized for an entire budget year to protect customers from the effects of unforeseen inflation. The Military Services, operating with fixed appropriation levels, cannot respond readily to cost fluctuations within the budget year. For the new biennial budget cycle, a stabilized rate will continue to be set for each year.

Stabilized rates basically reflect current operating costs, not prior-year deficits or surpluses. Past-year residuals are supposed to be addressed through the Military Services' appropriation accounts. Furthermore, budget policy precludes headquarters operations, particularly general overhead, from being industrially funded.

Stabilized workloads are needed to protect the TOAs from unnecessary operational fluctuations. The Military Services should be able to realistically forecast their workloads for that budget year. In practice, that would avoid disruptive fluctuations in workloads and allow the TOAs to effectively plan for, and operate within, the budget year.

Long-Term Rate Fluctuations

TOAs' billing rates that fluctuate widely from year to year are of concern to the Military Services. Table 1-1 shows, for example, that MSC's cargo rates decreased by 14 percent between FY87 and FY88, but increased 50 percent in FY89. Increases of this magnitude are the primary reason for the current underfunding of transportation requirements.

Two factors significantly contribute to rate fluctuations. First, MSC's use of 6-month contracts tends to produce substantial changes in rates. MSC is reviewing the use of longer term contracts with definite-quantity tonnages and reasonable, balanced quality standards to reduce such variability.

Second, the relationship between the Comptroller of the DoD and the TOAs (through their Service Comptrollers) appears to contribute to rate variability. Over past budget periods:

- The Comptroller of the DoD cut TOAs' cost estimates, judged to be unjustifiably high, resulting in lower customer rates.

- Some TOAs subsequently overestimated costs in anticipation of future DoD Comptroller cuts.
- The Comptroller of the DoD then reduced some of these high-cost estimates, thereby unwittingly perpetuating the cycle.

Improved communication and coordination during the cost estimation process should help break this cycle and reduce rate variability.

BILLING RATES AND OPERATING COSTS

MAC and MSC's billing rates are not sufficiently specific to cover actual operating costs: MAC's do not cover Frequency Channel operating costs; MSC's do not reflect the cost of specific services rendered.

MAC Channel Rates

Issue

Frequency Channel airlift is often underutilized, thereby incurring losses that exceeded $40 million in FY88. Losses occurred because billings did not cover *operating costs.*

Analysis

Frequency Channels for airlifting passengers and cargo are requested and validated on a periodic basis. Table 2-1 shows the distribution of 152 Frequency Channels operated by MAC for 13 validators. The Military Services validated nearly 70 percent of the Frequency Channels; the balance were validated by the Unified Commands. MAC does not control the scheduling of Frequency Channels, which generally serve multiple users.

Frequency Channels are often validated in the interest of readiness but without full consideration of aircraft utilization and operating costs. Users are charged according to the number of cargo tons moved or passengers carried. The validator responsible for establishing a Frequency Channel is not liable for unreimbursed operating costs. Table 2-2 illustrates the effect of utilization rates on operating costs and revenues for four Frequency Channels. As shown in that table, the lower the utilization the greater the loss. Underlying the relationship between utilization

TABLE 2-1

VALIDATED FREQUENCY CHANNELS

Validator	Frequency Channels	
	Number	Percent
Military Service/Major Command		
Chief of Naval Operations	33	21.7
U.S. Air Forces Europe	32	21.1
Air Force Systems Command	2	1.3
Department of the Army	5	3.6
Central Command Air Forces	1	0.1
Air Force Space Command	2	1.3
Pacific Command Air Forces	17	11.4
Alaskan Air Command	10	6.6
Chief Marine Corps	4	2.6
Subtotal	106	69.7
Unified Command		
Commander-in-Chief, Southern Command	32	21.1
Commander-in-Chief, European Command	6	4.0
Commander-in-Chief, Atlantic Command	4	2.6
Commander-in-Chief, Pacific Command	4	2.6
Subtotal	46	30.3
Total	152	100.0

Source: MAC

rates and losses are the particular type of aircraft flown, mission frequency, and distance traveled.

In contrast, Requirement Channel rates more than cover operating costs.[1] Unlike Frequency Channels, Requirement Channel service is controlled by MAC. The Military Services forecast their cargo and passenger requirements in advance, and MAC schedules Requirement Channel missions to satisfy those requirements.

[1]The same rate is charged for both Frequency and Requirement Channels. In effect, excess revenues from Requirement Channels offset financial losses from Frequency Channels.

TABLE 2-2

FREQUENCY CHANNEL UTILIZATION RATES AND LOSSES

Validator	Frequency	Aircraft	Capacity utilization (%)		FY89 projected loss ($ millions)
			Cargo	Passengers	
Army	2/week; Hawaii – Johnson Atoll	C-141	100	85	0.0
Navy	3/week; Naples – Olbia	C-130	43	68	0.5
Marine Corps	Every other day; Yokota – Kadena	C-141	30	88	0.8
Air Force	6/month; Hawaii – Wake Island	C-141	27	50	1.0

Source: MAC

MAC's Requirement Channel outbound utilization rates are generally higher than those for retrograde or intratheater missions.

Both Frequency and Requirement Channels should be independently self-sustaining. If they were, MAC's organic aircraft would be better utilized and its operations more efficient.

Policy Recommendation

Frequency Channel validators should be responsible for operating costs not paid by users. MAC should develop an administratively simple mechanism to encourage more efficient utilization of Frequency Channels and to recoup unreimbursed costs.[2] That mechanism should be incorporated into the Airlift Services Industrial Fund billing policy.

Among the benefits anticipated from such an action are:

- Greater consideration of costs in relation to readiness
- Higher utilization of organic MAC aircraft flying Frequency Channels

[2]The financial mechanism may have to be structured differently for the Military Services and Unified Commands.

- Lower billing rates and higher utilization rates for Requirement Channels
- Lower Government expenditures.

MSC's Billing Rates

Issue

MSC's dry cargo billing rates have caused some DoD shippers to seek spot service directly from commercial sources. Such bypassing of the sealift services provided under MSC's commercial contracts has potentially serious consequences for Government sealift costs and for wartime readiness.

Analysis

In many instances, MSC's billing rates do not reflect the specific services rendered to the Military Services. Table 2-3 illustrates MSC's charges for shipping general dry cargo from a U.S. East Coast port to a European port; the MSC basis for billing is juxtaposed with that of a commercial carrier. Unlike commercial carrier billings, MSC's billings for transportation services are averaged, resulting in nonservice-specific charges to shippers.

The *Merchant Marine Act*[3] requires that each type of cargo (e.g., dry, bulk, refrigerated) be charged the same rate for over-ocean transportation from any port within an originating region to any port within a destination region in one direction. MSC charged $35.85 per measurement ton in October 1988 for over-ocean transportation of general dry cargo from any U.S. East Coast port to any European port on Trade Route 05 (Continental Europe, the United Kingdom, and Ireland). However, unlike the commercial carriers, MSC averaged outbound and inbound over-ocean costs in developing its East Coast to Europe rate.

The *Merchant Marine Act* has no regional-costing requirement for non-over-ocean services, like drayage or port handling. Thus, under its commercial contracts, MSC is billed specifically for (1) the size of container shipped (container-handling costs vary by 70 percent between 40-foot and 20-foot containers) and (2) inland costs (which vary by distance). Carriers regionally average port fees and assessments, despite oftentimes substantial differences among ports within a region.

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[3] *Merchant Marine Act*, Section 205, "Reorganization Act of 1949."

TABLE 2-3

BILLING FOR GENERAL DRY CARGO

U.S. East Coast Port to Europe (Route 05), October 1988

Factor	MSC's billing rate ($ per measure-ment ton)	Basis for billing	
		MSC	Commercial carrier
Over ocean	35.85	All East Coast ports the same Averaging: Inbound and outbound costs	All East Coast ports the same Specific services: Inbound and outbound costs differ
Other operating costs (e.g., drayage)	18.75	Regional averaging: Container size Inland costs Port fees and assessments	Specific services: 20-foot to 40-foot containers Inland costs Averaging: Port fees and assessments
Overhead and Comptroller of the DoD adjustments	-2.20	Not applicable	Not applicable
MSC's final billing rate	52.40	Not applicable	Not applicable

Source: MSC

On the East Coast, for example, port fees and assessments at southern ports are considerably lower than at northern ports.

MSC includes all of these operating cost factors in regional averages and bills its customers on that composite basis. In the example in Table 2-3, $18.75 is charged for non-over-ocean transportation despite substantial differences in inland costs and other factors among particular ports within that region.

In the face of increasingly austere second-destination transportation funding, the Military Services have been scrutinizing MSC's billing rates and seeking less costly ocean transportation alternatives. Two such cases are described to support the

recommended changes to MSC's billing practices. Also, the Army requested that MSC conduct a sensitivity analysis to determine whether the MSC's FY90 billing rate is correct for the Army's budgeting purposes. That analysis showed that the composite MSC billing rate does not reflect the Army's route utilizations and mix of container and breakbulk, thereby leading to an incorrect budget to pay for the Army's sealift transportation.

Army and Air Force Exchange System's Beverage Case

The Army and Air Force Exchange System (AAFES) – in response to MSC's billing rates for beverage shipments from southern U.S. ports to Kaiserslautern, Federal Republic of Germany (FRG) – sought commercial spot bids for its shipments. Table 2-4 depicts the AAFES spot rates. MSC's fixed billing rate of $2,828 per 40-foot container compares unfavorably with the commercial spot rates that AAFES obtained for the same transportation services. It is not surprising that AAFES found a "bargain" for shipments from southern ports because the port fees and assessments, and other transportation costs from southern ports, are traditionally the lowest on the East Coast.[4]

TABLE 2-4

AAFES BEVERAGE SHIPMENTS TO THE FRG

(Per 40-foot container)

Origin	Commercial spot rate ($)	MSC's billing rate ($)	MSC's variance (%)
Charleston, SC	2,016	2,828	40.3
Williamsburg, VA	2,185	2,828	29.4
Atlanta, GA	2,446	2,828	15.6

Source: OSD

The significance of the AAFES case is twofold. First, although the spot commercial rate obtained by AAFES may be less than MSC's billing rate, the actual rate paid by MSC to its contract carriers may be less expensive. Thus, spot-market sealift services, in fact, may be more expensive to the Government. Second, MSC's

[4]Northeastern port costs exceed MSC's average East Coast billing rate. As a result, bargain hunting at these ports does not occur

commercial contracts rely on substantial tonnages to keep rates low and to help maintain an adequate merchant-fleet industrial base. High-volume shippers, like AAFES, are important to MSC and the industrial base.

Defense Logistics Agency's Wood Pallet Case

The Defense Logistics Agency (DLA) conducted an economic assessment to determine whether it should buy new wood pallets for use at its Defense Depot in Mechanicsburg, Pennsylvania, or return used wood pallets from Europe for reuse. MSC's billing rate was critical to DLA's decision.

In considering whether to buy new pallets or retrograde used pallets from Europe, DLA's economic analysis showed the following:

- The cost of buying new wood pallets was $1,022,736.
- The cost of transporting, via MSC, the same number of pallets from Europe to Military Ocean Terminal Sunny Point, North Carolina, was $1,115,675, or 8 percent more than the cost of purchasing new pallets.
- MSC, under its container agreement, would pay the ocean carriers $612,344, or 45 percent less than what it would charge DLA.

DLA then concluded it was cheaper to buy new pallets than to retrograde used ones. However, had MSC's billing rate more closely matched actual carrier costs, DLA would have concluded otherwise.

DLA has prescribed two options for resolving this situation. The first is for MSC to bill DLA in accordance with actual container-agreement rates rather than MSC's billing rates. This option is under consideration. The second is for DLA to obtain approval for a spot commercial rate for return of the pallets.

Policy Recommendation

MSC's billing rates should be revised to reflect the specific services rendered to customers. At a minimum, the billing rates should differentiate between differences in inland costs (drayage/linehaul) and inbound and outbound over-ocean costs. Abandoning the averaging of billing rates would remove many of the Military Services' complaints of unfair charges, eliminate the desire of shippers to negotiate

their own rates with carriers, and alleviate concerns about degrading the maritime industrial base.[5]

CARGO HOLDING TIMES AND AIRCRAFT UTILIZATION

Issue

APOE cargo holding times under the Uniform Materiel Movement and Issue Priority System (UMMIPS) may be unduly constraining and adversely affect utilization of MAC's organic aircraft.

Analysis

In addition to appropriately priced airlift services, APOE cargo holding times are an important operational consideration for effective utilization of MAC's organic aircraft. DoD Directive 4410.6, *UMMIPS*, October 1980, and a soon-to-be-published revision designate time standards for the various pipeline segments between requisition and receipt. Table 2-5 displays this information for TP-1 cargo to Europe. The differences between the current and upcoming UMMIPS directives are discussed below.

Although both directives specify the same 12 days for the process, they differ in two important aspects. First, the proposed directive compresses the time allowed for TP-1 requisition submission and passing action (segments 1 and 2 in Table 2-5) from 2 days to 1 day. Second, the proposed directive also increases the collective TP-1 time for port of embarkation processing, intransit overseas, port of debarkation processing, and intratheater intransit (segments 6 through 9) from 4 days to 5 days. The extra day on segments 6 through 9 would provide MAC and in-theater transportation managers greater flexibility if they were not held to the four time segments individually (as indicated in the proposed directive) but allowed to use the whole 5 days in the most advantageous fashion.

In one instance, MAC experimented with extending the APOE 48-hour holding time to increase airlift utilization. By extending the holding time to 55 hours, MAC

[5]Cargo routing would remain unaffected by the recommended change because MTMC routes cargo in accordance with its "MTMC Routing Rate Information Letter." Also, MSC would continue to average the rates of winning bidders for billing purposes. Finally, the adoption of MSC's detailed billing rates does not imply that they should be used for planning and budgeting. The Comptroller of the DoD reaffirms that composite rates, somewhat more detailed than before, would continue to be used for budgeting purposes.

TABLE 2-5

UMMIPS TIME STANDARDS FOR TP-1

(Elapsed calendar days)

Pipeline time segment	Current	Proposed
1. Requisition submission	1	1
2. Passing action	1	
3. Inventory control point availability determination	1	1
4. Depot/storage site	1	4
5. CONUS intransit	3	
6. Port of embarkation process	4	2
7. Intransit overseas		1
8. Port of debarkation processing		1
9. Intratheater intransit		1
10. Receipt by requisitioner	1	1
Total order-ship time	12	12

Source: OSD

significantly improved aircraft utilization without jeopardizing the total order-ship time. In fact, MAC's customers were unaware that holding times had been extended. It appears there may be sufficient latitude in the pipeline time segments to increase APOE holding times up to 12 hours without increasing either total order-ship time or pipeline inventory costs.

Policy Recommendation

MAC should test extending APOE holding times up to 12 hours to determine the tradeoffs between increasing aircraft utilization and overall pipeline inventory costs. MAC should measure the payoffs and costs when APOE holding times are extended. To accomplish this, benchmarks should be established for current operations to serve as a basis for measuring the effects of extended APOE holding times. To gauge the full effects of such a change, data should be collected for at least 1 year.

WORKLOAD STABILITY

Issue

Military Services' airlift workloads have varied considerably from their forecasts, degrading MAC's planning and reducing mission effectiveness. A major contributor to this variance has been the mid-budget-year diversion of air-eligible cargo to sealift.

Anaiysis

Successful operation of the Airlift Services Industrial Fund is dependent on stabilized rates and stabilized workloads for MAC during any budget period. MAC schedules its Requirement Channels and SAAMs [and guarantees workload levels to the Civil Reserve Air Fleet (CRAF)] based upon forecasted airlift workloads, both to keep aircraft utilization high and to meet its overall readiness flying-hour program. Mid-year workload shifts from airlift to sealift disrupt MAC's plans for both its organic assets and the CRAF program.

The realism of airlift workload forecasts appears to be deteriorating. To illustrate, in FY88, both the Navy and Air Force overestimated their airlift workloads by 10 percent; during the first 6 months of FY89, they again overestimated their airlift workloads, this time by more than 20 percent.

The Military Services deviate from their forecasts primarily by lowering the weight and cubic size thresholds of their air-challenge systems. This results in diverting cargo normally specified for airlift, such as TP-2 cargo, to less expensive sealift.

Although in many cases sealift may be more appropriate than airlift, more realistic budget-year forecasts are needed for MAC to plan and utilize its organic assets and the CRAF program more effectively.

Currently, MAC offers a 5 percent discount for SAAM workloads that are guaranteed 30 days before airlift time. This approach works well for MAC and its customers and helps to stabilize the workload. A similar discount approach could be designed for passenger service (to reduce the "no show" rate from its current 9 percent) and for cargo on channel operations.

Policy Recommendation

MAC should encourage workload stability on channel operations by offering discounts for short-term and long-term guaranteed passenger and cargo workloads.

CONTRACTING AND LONG-TERM RATE FLUCTUATIONS

Issue

MSC may be encouraging higher, unstable commercial sealift rates and lower quality service with its current contracting practices.

Analysis

MSC's commercial ocean-carrier contract rates are rebid every 6 months. The contracts do not guarantee any tonnage to the winning carriers, although cargo tonnage targets are cited in the requests for proposals, as are minimum quality performance standards. In contrast, MAC's airlift contracts are renegotiated annually; they guarantee minimum passenger loads and cargo tonnages, with penalties for withdrawal of workloads; and they stipulate strict performance standards.

MSC has had a mixed record with its short-term contracting approach. By all accounts, MSC has achieved substantial success in keeping rates low through encouragement of new entrants into the industry. However, its approach to contracting has two weaknesses.

First, it contributes to highly variable ocean cargo rates for DoD shippers. Table 1-1 shows that MSC's composite rates decreased 13.9 percent in FY88 and increased 50.0 percent in FY89. In contrast, MAC's 1-year contract rates with airlines were considerably less volatile – ranging from a decrease of 13.0 percent to a 16.0 percent increase over this period. MSC is conducting an analysis to determine

the optimal length of its over-ocean contracts and the advisability of guaranteeing workload tonnages – all for the purpose of obtaining lower, more stable rates.[6]

Second, it results in considerable unpredictability in the quality of sealift services. Some of MSC's customers claim that new ocean carriers often fail to perform as well as the established carriers. Also, senior United States Transportation Command representatives expressed concern that the maritime industrial base may be jeopardized by awarding contracts to "less-than-fully qualified" carriers. The insertion of reasonable performance standards into MSC's contracts should help standardize carrier performance and still meet the goals of the Competition in Contracting Act of 1984. In its sealift contract beginning 1 October 1989, MSC took steps to improve the quality of service; among these are provisions on planned frequency of service, technical capability, and documentation requirements.

Furthermore, MSC is actively reviewing other terms of its sealift contract. One of its proposals is to spread the cargo awards among more carriers in order to promote the maritime industrial base and competition.[7]

Policy Recommendation

MSC should continue to review its contracting practices, including contract periods (with a minimum length of 1 year); definite-quantity tonnages; and reasonable, balanced quality performance standards. Such revisions promise to reduce sealift costs, improve quality, and strengthen the industrial base.

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[6]Academic literature on contracting, and discussions with Government transportation contract personnel, indicate that longer term contracts can provide low and stable rates with more predictable carrier performance – provided they specify definite-quantity tonnages and carrier performance standards with penalties. However, qualified bidders should not be restricted from entering the industry. See the following references: Farrell, J. and Carl Shapiro, "Optimal Contracts with Lock-In," *The American Economic Review*, Mar 1989. Carlton, D. W., "Contracts, Price Rigidity and Market Equilibrium," *Journal of Political Economy*, Vol. 87, No. 5, 1979.

[7]"MSC May Alter Military Cargo Bidding System," *The Journal of Commerce*, 25 Sep 1989

INTERNATIONAL SHIPMENT OF PERSONAL PROPERTY

Issue

The DoD may not be benefiting from the lowest possible rates for the international shipment of personal property (household goods, excluding unaccompanied baggage) under Code 4 and Code 5.[8]

Analysis

The international shipment of personal property under Code 4 (as defined in DoD 4500.34-R) constitutes approximately 80 percent of such tonnage shipped. Code 5 represents approximately 10 percent. The remainder is moved under the Direct Procurement Method and by other means.

Under Code 4, one carrier is responsible for the entire move, from packing and pickup at origin to delivery and unpacking at destination, with the movement occurring under an International Through Government Bill of Lading. Under Code 5, port handling and ocean carriage are accomplished within the Defense Transportation System by MTMC and MSC. Both Code 4 and Code 5 currently operate under a 6-month bid cycle (see preceding section on "Contracting and Long-Term Rate Fluctuations").

There is considerable variance between Code 4 and Code 5 rates, as illustrated in Table 2-6. The higher Code 5 rates are typical and provide a major reason for the predominance of Code 4 shipments.

MSC's practice of averaging cost differences – such as inbound and outbound over-ocean and inland transport – is thought to be a major contributor to the variance between Code 4 and Code 5 rates. Closing the gap between these two rates can be expected to result in more Code 5 shipments, which will increase the tonnage offerings in MSC's request for proposals, and thus provide an incentive for ocean carriers to bid lower over-ocean rates. Furthermore, the lower Code 5 ocean rates can be expected to spill over into lower over-ocean Code 4 rates; however, the overall effect on Code 4 rates is uncertain. Despite this uncertainty, it may be more practical

[8] *Personal Property Traffic Management Regulation*, DoD 4500.34-R, May 1986 (with changes)

TABLE 2-6

CODE 4/CODE 5 PERSONAL PROPERTY
SHIPPING RATE COMPARISON

From Virginia to:	Through rate ($ per hundred weight)		Code 4 variance (%)
	Code 5	Code 4	
Italy	79.46	75.82	-4.6
FRG[a]	105.43	73.50	-30.3
Korea	128.37	97.07	-32.2

Source: MTMC
[a] Southern region only

to have the Code 4 bid cycle dovetail with the proposed 1-year cycle for MSC's contracts that include Code 5 tonnage.

In addition to the aforementioned, MTMC has devised, and is experimenting with, a new "through container" method for the international movement of personal property. Initial analysis suggests substantial cost savings. Under the through container concept, a seavan is positioned and fully loaded with "Type II" household goods boxes at the forwarder's (contractor's) origin facility. The seavan is hauled directly to shipside and loaded aboard a vessel. The process is reversed at destination. However, the method is suitable only on high tonnage routes wherein contractors can completely fill an entire seavan. Further experimentation and analysis of related costs are required.

Policy Recommendation

A sequential and related set of actions should be initiated to induce a reduction in the international shipping costs for personal property. These actions are:

- MTMC should experiment with and evaluate the results of its new through container method with emphasis on applicability and cost savings.
- MSC should change its billing practices (see earlier billing rate recommendation) to narrow the gap between Code 4 and Code 5 rates.

- MSC should continue to include all Code 5 tonnage in its request for proposals for over-ocean contracts; given greater comparability between Code 4 and Code 5 rates, tonnages should shift from Code 4 to Code 5.
- MTMC should assess the feasibility of a 1-year bid cycle for Code 4 rates to correspond with the new bid cycle for ocean rates.[9]
- MTMC should conduct a minimum 1-year evaluation of the results of these actions and their effect on reducing the international shipping costs for personal property.

TRAFFIC MANAGEMENT ACCOUNT

Issue

The current method for funding MTMC's Traffic Management Account (TMA) lacks the flexibility to accommodate initiatives that routinely arise within the budget year.

Analysis

The TMA, funded by direct appropriation, pays for the data processing support, equipment, labor, supplies, and inland traffic and personal property traffic management functions; for passenger traffic; and for transportation engineering. The TMA also pays for the operation of MTMC's European and Pacific Field Offices. FY 94 funding for MTMC's TMA is $24 million.

Because it is direct funded, the TMA does not provide sufficient flexibility for MTMC to meet the Military Services' requests or to undertake unforeseen traffic management initiatives that may arise within the budget year. As a result, such requests and initiatives have been accommodated on an ad hoc basis, if at all. Greater flexibility is required to allow such projects to be undertaken in a timely manner and as a routine procedure.

An Army-imposed manpower ceiling is another obstacle to increased flexibility. This ceiling affects all Army commands, including MTMC. Despite program approval and funding under the TMA, the manpower ceiling could jeopardize program execution, particularly those programs that call for an increase in manpower. The use of manpower ceilings is not DoD policy. The Army is responding

[9]Code 4 household goods shipments are highly seasonal. As a result, peak and off-season rates within each 1-year bid cycle may be advisable.

to this concern through application of its Manage to Civilian Budget test started on 1 October 1989. Under the test, the Army relaxed its manpower personnel ceilings at MTMC.

A number of alternative TMA funding mechanisms are possible – reimbursable cost agreements, special OSD productivity funds, and the industrial fund. All except industrial funding suffer drawbacks. Most are either not wholly applicable to MTMC's routine traffic management functions or they provide only some increase in flexibility. Only industrial funding will provide MTMC sufficient flexibility to accommodate both mid-year traffic management changes and other initiatives; that alternative is also dependent on removing or relaxing the manpower ceiling.

Various considerations are necessary to industrially fund the traffic management functions. For example, general overhead should be separated from operating costs for billing purposes. Also, output-oriented measures on which to charge customers for services rendered, such as passengers booked and tonnages transported, should be developed.

Policy Recommendation

Two actions are necessary to provide MTMC the flexibility and responsiveness needed to address new traffic management initiatives arising during a budget year:

- MTMC should determine the applicability of the industrial fund (DoD Directive 7410.4, *Industrial Fund Operations*, July 1988) to each of the various traffic management functions and request approval of the Comptroller of the DoD to modify MTMC's charter accordingly.
- The Department of the Army should relax its manpower ceilings on industrial funded activities.

TRANSPORTATION INDUSTRIAL FUND ADMINISTRATION

Issue

Administrative changes to the industrial funds governing transportation operations may be necessary in order to improve the efficiency and responsiveness of those operations.

Analysis

The operation of each TOA is financed through a separate industrial fund. Airlift services are offered by MAC under the Airlift Services Industrial Fund, part of the Air Force Industrial Fund; sealift services by MSC under the Navy Industrial Fund; and port handling of international cargo by MTMC under the Army Industrial Fund.

Since their establishment more than 30 years ago, the operation of these transportation industrial funds has changed. The buyer-seller relationship – considered to be the cornerstone of an industrial fund – appears to have been both manipulated and degraded over the years.

In reviewing the industrial funds, we examined various potential administrative changes. The goals of such changes were to:

- Improve DoD transportation effectiveness and reduce costs
- Reduce the ability of the many different players in the industrial fund arena to make uncoordinated changes to fund operations.

One option considered was the development of a single transportation industrial fund. However, this option presents three major disadvantages:

- TOAs' functions do not overlap sufficiently to warrant consolidation of their industrial funds for purposes of operational improvement and cost savings.
- Placing the airlift, sealift, and port-handling functions under one headquarters probably would create a top-heavy organization with reduced effectiveness, responsiveness, and flexibility.
- The transportation industrial funds are a significant portion of larger industrial funds operated by the Military Services; separation could limit the flexibility of those larger industrial funds.

The participants in the industrial fund arena do not favor such a change because of the aforementioned reasons.

Policy Recommendation

The existing administration of the TOAs' industrial funds should be retained.

CHAPTER 3

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The following conclusions are based upon the data and analysis presented in Chapters 1 and 2:

1. The Military Services have received funding for only 90 percent of their FY89 transportation requirements; that imbalance exists for FY90 and could continue for the foreseeable future, thereby requiring better transportation operating efficiency.

2. The Military Services have made short-term operational adjustments to cope with the stringent budgetary environment.

3. The TOAs have taken a number of steps to improve transportation efficiency to reduce operating costs.

4. The Comptroller of the DoD must effectively deal with the often differing views set forth by the Military Services and TOAs, while applying the budgetary constraints imposed by the current economic climate. Close coordination and communication are required among all participants to balance transportation requirements with budgeting considerations.

5. Long-term policy changes are required to improve DoD transportation operations and to balance transportation requirements and budgetary constraints.

   Short-term operational adjustments are insufficient to meet austere transportation funding levels. More fundamental improvements are needed.

6. TOAs' billing rates do not always reflect the exact transportation services rendered. Inefficiencies and customer dissatisfaction result.

7. UMMIPS standards may unduly constrain MAC's utilization of organic aircraft.

8. The Military Services' airlift workload forecasts have not been very realistic, disrupting MAC's planning and airlift mission efficiency.

9. MSC may be able to reduce commercial sealift costs and improve the quality of service provided by commercial ocean carriers with changed contracting provisions.

10. The transportation cost of the international shipment of personal property (Code 4 and Code 5) may be lowered substantially.

11. MTMC's traffic management functions are direct appropriation funded through its TMA, a financial mechanism that does not allow adequate responsiveness to mid-year changes and initiatives. The Department of the Army's manpower ceilings also contribute to that inflexibility.

12. MTMC requires greater flexibility and responsiveness in its traffic management functions to accommodate special requests and respond to DoD-wide initiatives.

13. The current industrial fund operation of the TOAs provides satisfactory transportation responsiveness and efficiency.

RECOMMENDATIONS

Based upon these conclusions, we recommend that the TOAs take the following actions:

1. MAC should develop a procedure that holds validators of Frequency Channels responsible for costs unpaid by their users. In conjunction with this change, MAC should also reduce its rates for Requirement Channels, as may be appropriate, in order to improve airlift utilization.

2. MAC should test extending APOE holding times to determine the trade-offs between increasing aircraft utilization and increasing pipeline inventory costs.

   APOE holding times should be tested in selective and promising areas by applying relatively small increases (for example, 12 hours or less). The test should measure the payoffs and costs related to slightly extended APOE holding times and should be conducted for at least a 1-year period.

3. MAC should devise a discount mechanism to encourage more realistic budget and short-term forecasting of airlift cargo and passenger workloads by the Military Services.

4. MSC should construct its billing rates to more closely reflect the specific costs of sealift services rendered to its individual customers.

   MSC should replace its average billing rates with rates that reflect differences in inland costs and inbound and outbound over-ocean costs.

However, composite rates should continue to be used for planning and budgeting purposes.

5. MSC should continue to review its contracting terms to reduce commercial sealift rates, promote rate stability, and improve both the quality of performance and the industrial base.

   The review should include lengthening the period between bids (minimum of 1 year); guaranteeing workload tonnages to commercial carriers; and greater use of reasonable, balanced quality performance standards.

6. MTMC should apply the following sequential steps to reduce the international shipping costs for personal property:

   a. Experiment with and analyze the results of the new through container method to determine its degree of applicability and potential for saving costs.

   b. Contingent on MSC changing its billing rate practices (Recommendation 4), place the anticipated additional Code 5 tonnages in MSC's request for proposals to sealift carriers to encourage reduced dry cargo rates.

   c. Assess the feasibility of extending the Code 4 bid period from 6 months to 1 year.

   d. Evaluate the effect of higher tonnages in MSC's contracts for the international shipment of personal property.

7. MTMC should develop the necessary mechanism for industrially funding traffic management functions to achieve increased flexibility and responsiveness. Also, the Department of the Army should relax its use of manpower ceilings for industrially funded activities.

Both the Assistant Secretary of Defense (Production and Logistics) and the Comptroller of the DoD should provide implementing guidance and monitor progress on these actions.

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The Military Departments received funding for only 90 percent of their FY89 transportation requirements. A comparable shortfall is known to exist in FY90. Under these conditions, there has been keen interest in conserving funds, in general, and in the careful operation of the industrial funds, in particular.

This report evaluates the Transportation Operating Agencies' (TOAs') industrial fund operations in meeting the Military Services' transportation requirements. The evaluation criteria used relate to the buyer-seller relationship, TOAs' rate formulation, Military Services' workload forecasts, and long-term rate stability.

Various policy recommendations are made to improve the transportation industrial funds. These include: changes in sealift and airlift billing formulations to promote overall efficiency and customer satisfaction; tests with cargo-holding times to increase aircraft utilization; and industrially funding traffic management functions to provide greater flexibility and responsiveness for meeting mid-budget year initiatives.

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